

Jiayue Wan

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EDUCATION

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- Cornell University, College of Engineering**, Ithaca, NY May 2024
- Ph.D. in Operations Research and Information Engineering, GPA: 4.13/4.3. Advisor: Peter I. Frazier
 - Skills: Bayesian Optimization, Statistical Learning, Experimental Design, Causal Inference, Stochastic Modeling, Simulation
- Stanford University, School of Engineering**, Stanford, CA June 2018
- M.S. in Management Science and Engineering, GPA: 4.07/4.3
- Haverford College**, Haverford, PA May 2016
- B.S. in Mathematics and Physics, *magna cum laude*, Phi Beta Kappa, GPA: 3.96/4

PROFESSIONAL EXPERIENCE

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- Susquehanna International Group**, Bala Cynwyd, PA August 2024 – current
Quantitative Research Trading Associate
- Developed and implemented mathematical and statistical models to predict price, quote size, market order flow, and other market signals for the index options desk
 - Validated signal discoveries through data collection, statistical experiments, and backtesting simulations
 - Integrated models into electronic trading strategies, collaborating with developers to optimize performance
- Meta**, Menlo Park, CA May 2022 – January 2023
Research Engineering Intern, Core Data Science (Adaptive Experimentation)
- Formulated and developed stopping-aware Bayesian optimization algorithms for the BoTorch package for solving expensive-to-evaluate problems such as hyperparameter optimization (HPO) and A/B testing
 - Implemented a general model-based learning curve early stopping framework in the adaptive experimentation (Ax) platform
- Cornell University**, Ithaca, NY April 2020 – May 2022
Data Scientist, COVID-19 Pandemic Response
- Guided Cornell's president and provost on whether to reopen for in-person instruction and what interventions to use, achieving a daily incidence of 0.01% in the 2020-21 academic year among 34K Cornell students/employees
 - Developed a Python compartmental simulation model (<https://github.com/peter-i-frazier/group-testing>) to forecast epidemiological outcomes in college environments, whose output influenced policies at Cornell, Stanford, Duke, University of Wisconsin, Boston University, Johns Hopkins, Yale, and several other universities
 - Led retrospective parameter estimation and model calibration analysis for the 2020-21 academic year using SQL, Python and Bayesian statistics to support improvements to Cornell's asymptomatic screening program
 - Led analysis of the risk of infection during travel to support travel policy decisions and communication with stakeholders by performing causal inference on data from 18K students
- Media coverage by ABC News, Wall Street Journal, Forbes, Asahi Shimbun.*

SELECTED PUBLICATIONS

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- Frazier et al., Modeling for COVID-19 College Reopening Decisions: Cornell, A Case Study. *Proceedings of the National Academy of Sciences*, 19(2) e2112532119 (2022).
- Wan et al., Booster vaccination protection against SARS-CoV-2 infections in young adults during an Omicron BA.1-predominant period: a retrospective cohort study. *PLOS Medicine*, 20(1):e1004153 (2023).
- Buathong et al., Bayesian Optimization of Function Networks with Partial Evaluations. *Proceedings of the 41st International Conference on Machine Learning*, PMLR 235:4752-4784 (2024).
- J. Wan, Y. Zhang, P.I. Frazier, Correlation Improves Group Testing: Modeling Concentration-Dependent Test Errors. To appear in *Management Science*.

RESEARCH EXPERIENCE

COVID-19 Mathematical Modeling

- Formulated a general theoretical framework for correlation in pooled testing to investigate its effect on sensitivity and efficiency and refine the scientific community's understanding of its ability to control epidemics
- Led analysis of vaccine effectiveness in response to queries from the CDC and NYC Health Department using Python and SQL

Grey-Box Bayesian Optimization

- Designed and implemented novel grey-box Bayesian optimization algorithms where additional sources of information besides the final objective are available

TEACHING EXPERIENCE

Teaching Assistant

- Introductory Engineering Probability and Statistics, Cornell University, Fall 2018
- Information Systems and Analysis, Cornell University, Spring 2019
- Simulation Modeling and Analysis, Cornell University, Fall 2019

ACADEMIC SERVICE

Conference Reviewing: AAAI, AutoML

Journal Reviewing: Nanoscale, Mathematical Biosciences and Engineering

LEADERSHIP & SKILLS

Co-President, Cornell University Operations Research Graduate Students' Association (ORGA)

2020 - 2021

Programming: Python (PyTorch, NumPy, SciPy, Scikit-Learn, Pandas), R, SQL, MATLAB, Julia

Languages: English, Mandarin Chinese, Shanghaiese